King County
METRO

Peer Agency Comparison on Performance Measures

April 2017

Department of Transportation
Metro Transit Division
Strategy and Performance
King Street Center, KSC-TR-0412
201 S Jackson St.
Seattle, WA 98104
www.kingcounty.gov/metro

Alternative Formats Available
206-477-3832 TTY Relay: 711

Introduction

Every year, King County Metro Transit compares its performance to that of peer agencies using data from the National Transportation Database (NTD). Metro compares itself to 29 of the other largest bus transit agencies in the U.S. (as defined by the number of passenger boardings). The comparisons include only the agencies' *bus* modes (motor bus, trolley bus, commuter bus, and rapid bus, as defined by the NTD).

The measures presented are from 2015, with comparisons to previous years. NTD annual data are not available until the end of the following year at the earliest, so the analysis is delayed by at least one year. Other challenges to peer analyses include the fact that only bus performance measures are measured, but many of the peer agencies also operate significant rail systems around which they structure their bus networks. This may affect their performance on the measures compared.

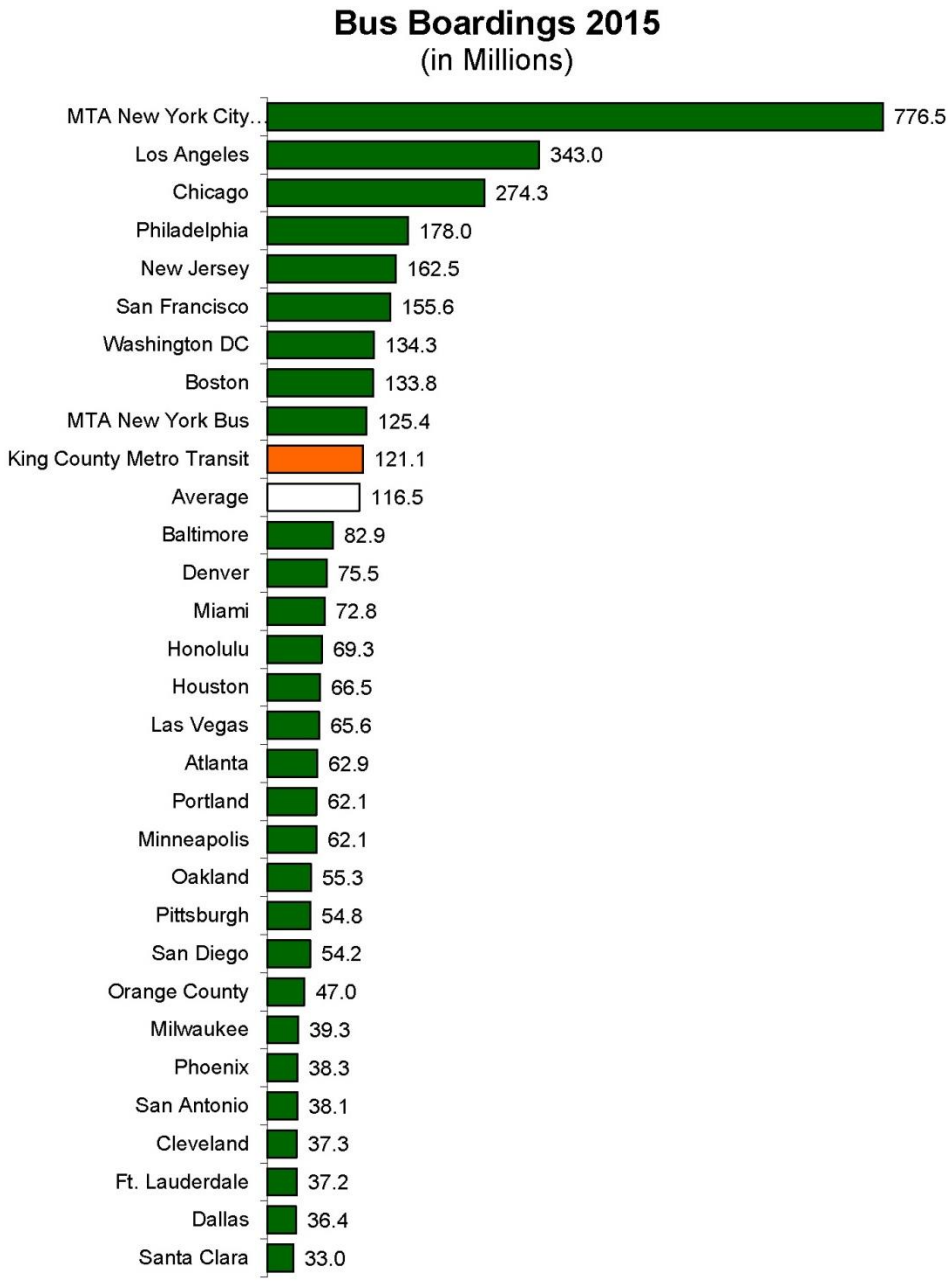
Also, it is not always clear what has been included and excluded in the NTD reports. In previous years, Metro's NTD submittals included Sound Transit bus service operated by Metro in some of the statistics. The peer analysis does not include Sound Transit service as Metro service, but the composition of other agencies' reports is uncertain. That is one reason Metro uses a robust cohort of 30 peers and shows the averages among them.

Generally, Metro does well on the *productivity* ratios (boardings per hour and passenger miles per vehicle mile) and about average on the *cost-effectiveness* ratios (cost per boarding and cost per passenger miles). Metro lags its peers in the *cost-efficiency* ratios (cost per hour and cost per mile).

	2015			1-year Annual Growth			5-year Annual Growth			10-year Annual Growth		
	Metro	Rank	Peer Avg	Metro	Rank	Peer Avg	Metro	Rank	Peer Avg	Metro	Rank	Peer Avg
Boardings (mil)	121.1	10	116.5	0.8%	9	-0.9%	2.0%	5	0.0%	1.8%	4	-0.5%
Boardings per hour	33.4	10	32.8	0.1%	5	-3.4%	1.3%	5	-1.0%	1.3%	3	-0.7%
Pass. miles per mile	12.2	9	10.6	1.3%	6	-2.6%	3.3%	7	0.5%	1.0%	12	0.4%
Cost per hour[1]	$142.91	23	$127.90	0.3%	17	-0.9 %	2.5%	23	1.6%	3.0%	18	2.8%
Cost per mile[1]	$11.84	21	$11.05	2.2%	20	0.0%	3.7%	25	2.1%	3.4%	16	3.3%
Cost per boarding[1]	$4.27	19	$4.14	0.2%	11	2.8%	1.2%	9	2.7%	1.7%	4	3.6%
Cost per pass. mile[1]	$0.97	13	$1.07	0.8%	11	3.2%	0.4%	9	1.7%	2.4%	15	3.0%
Farebox recovery	30.8%	8	27.1%	0.3%	8	-0.4%	2.7%	4	-0.9%	10.4%	2	-1.0%

The following pages discuss these measures in more detail.

[1] For the financial ratios, the rank is from lowest cost to highest cost. Thus, for all measures on the page, a lower number in the rank is better than a higher number



Bus Boardings: A boarding is an *unlinked passenger* trip. Passengers are counted each time they board vehicles no matter how many vehicles they use to travel from their origin to their destination.[2]

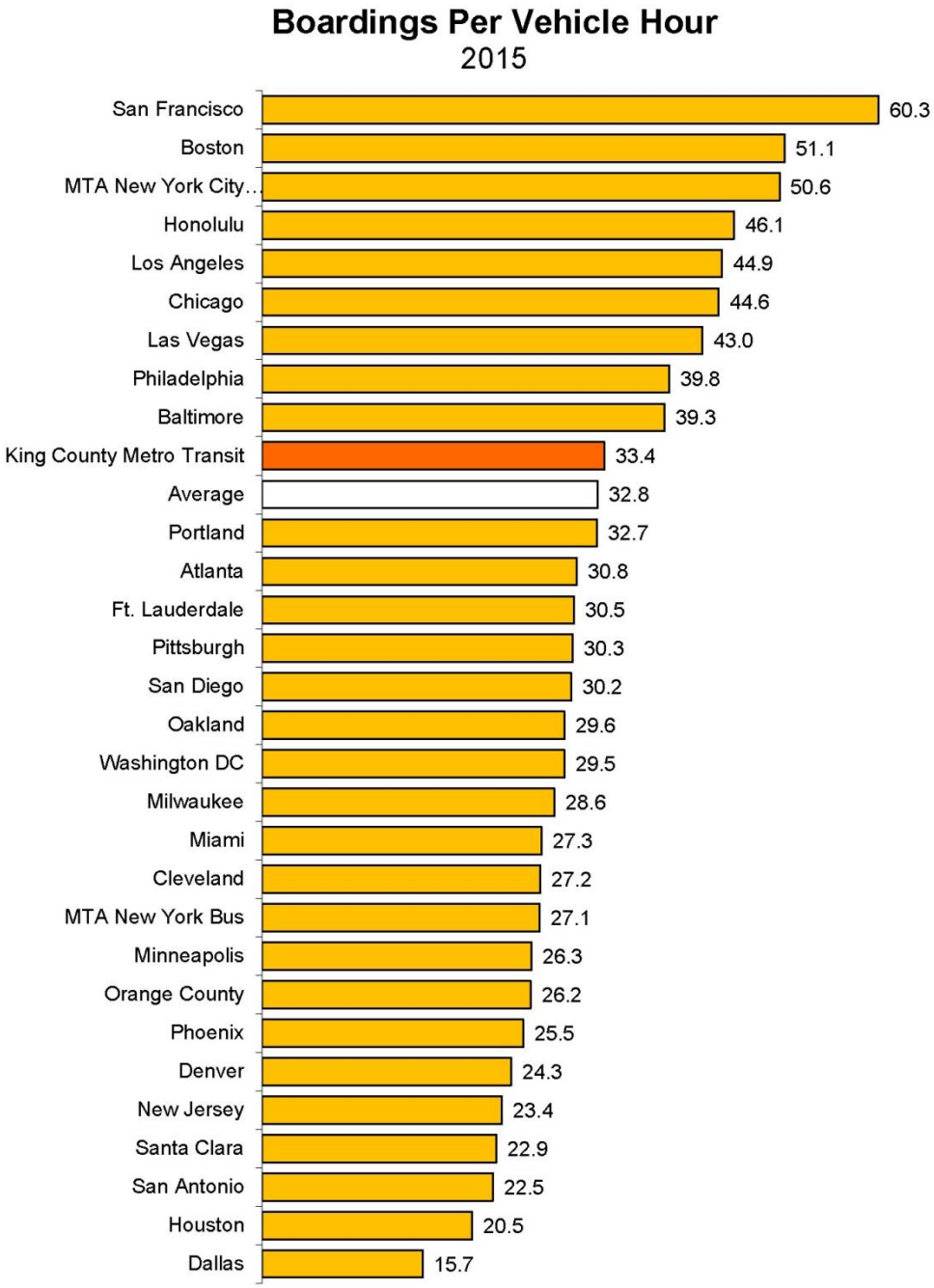
2015 peer rank: Metro had 121.1 million bus boardings in 2015 (peer rank: 10).

Trends: Over the past several years, Metro has been bucking the national trend of low growth or declining ridership. Those declines are likely the result of low inflation and low fuel prices that make automobile operations comparably cheaper. Metro benefits from a strong local economy, which creates a higher demand for transit commute trips. Although the Great Recession caused ridership losses for Metro in 2009 and 2010, Metro's ridership has grown at about one-and-a-half times the rate of King County's population over the past 10 years. Metro had the fourth highest growth rate among the 30 peers during that time.

Metro has invested in highly productive routes such as RapidRide, which have helped propel the longer-term growth. Metro has a very robust employer-provided pass program which has grown strongly over the years. Metro investments and purchases by the City of Seattle starting in 2015 helped offset ridership losses from budget-driven service reductions in late 2014.

Annual Change	Metro	Rank	Peer Avg.
1-year trend	0.8%	9	-0.9%
5-year trend	2.0%	5	0.0%
10-year trend	1.8%	4	-0.5%

[2] National Transit Database.



Annual Change	Metro	Rank	Peer Avg.
1-year trend	0.1%	5	-3.4%
5-year trend	1.3%	5	-1.0%
10-year trend	1.3%	3	-0.7%

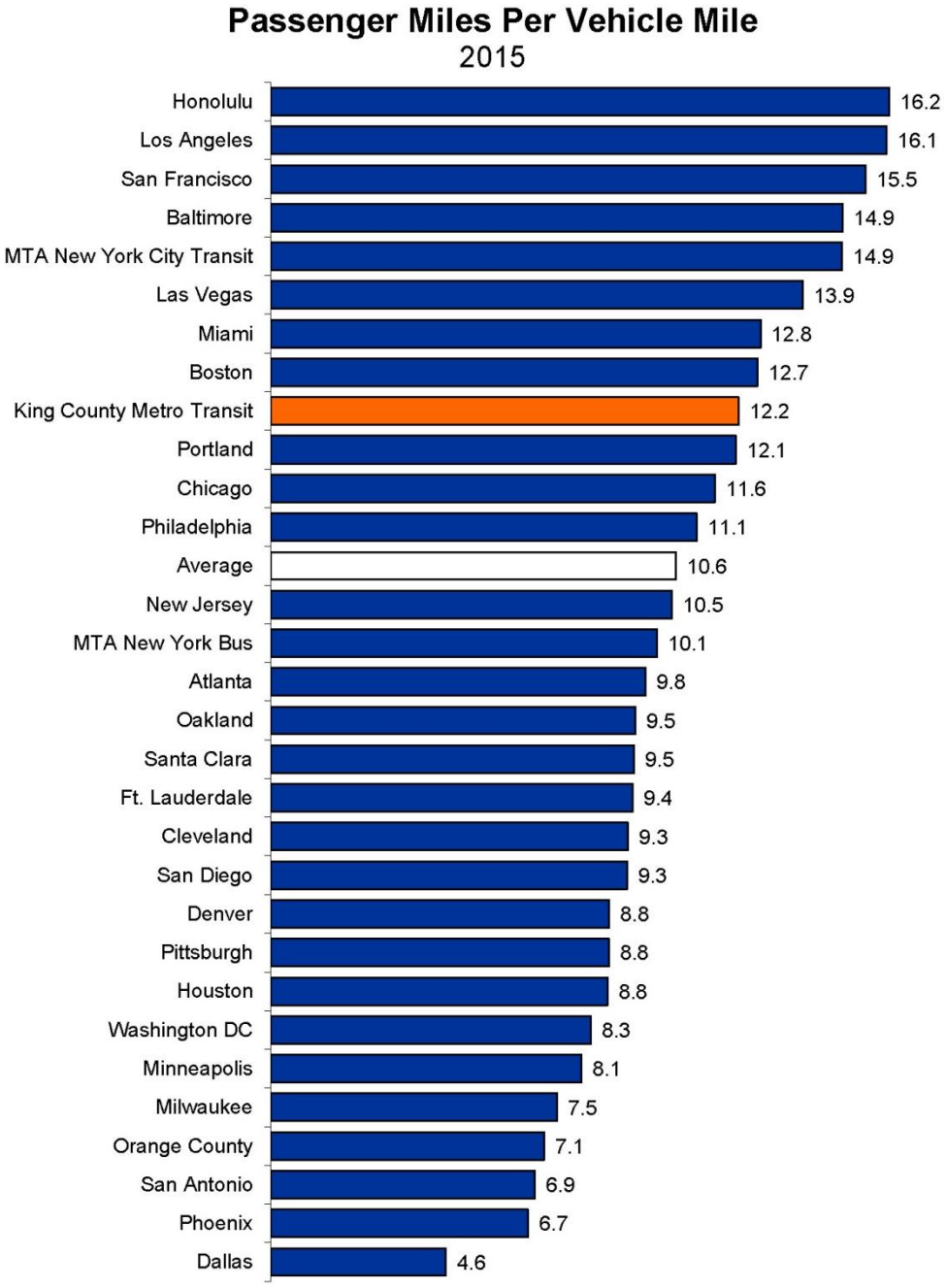
Boardings per vehicle hour: Vehicle hours are the hours that a vehicle travels from the time it pulls out from its garage to go into revenue service to the time it pulls in from revenue service.[3] The ratio of boardings to vehicle hours is a key *productivity* measure in its Annual System Evaluation (formerly called the Service Guidelines Report).

2015 peer rank: Metro had 33.4 boardings per hour in 2015, (peer rank: 10th highest). The peer average was 32.8.

Trends: Metro is among the leading agencies in the positive growth of this measure. Although the 2015 ratio was about the same as 2014 because ridership grew at about the same rate as hours, this still placed Metro at the fifth highest gain among the peers. Over the longer term, Metro has steadily improved on this measure, ranking fifth and third over five and 10 years. This tracks very closely with the ridership gains.

In addition to the steps to increase ridership mentioned in the previous measure, Metro has increased productivity through improved scheduling efficiency, reallocations of service hours, and restructuring of routes based on our Service Guidelines.

[3] National Transit Database.



Passenger miles per vehicle mile: Passenger miles are the cumulative sum of the distances ridden by each passenger. Vehicle miles are the miles that a vehicle travels from the time it pulls out from its garage to go into revenue service to the time it pulls in from revenue service.[4] The ratio of passenger miles to vehicle miles is another key *productivity* measure in Metro's Annual System Evaluation. This measure also is the average number of passengers that are on a bus at any particular time, including to and from the transit bases.

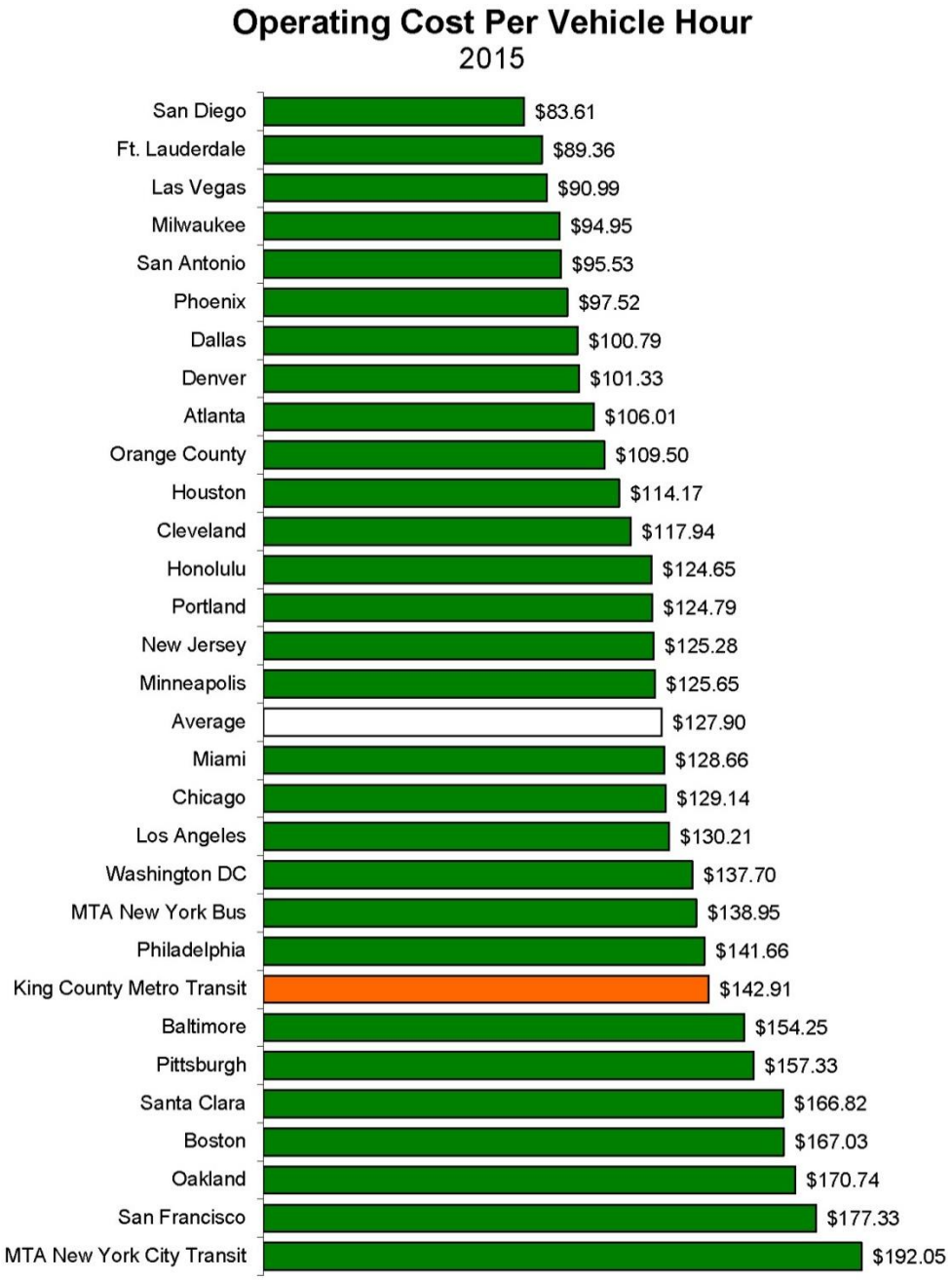
2015 peer rank: Metro had had 12.2 passenger miles per vehicle mile in 2015 (peer rank: ninth highest). The peer average was 10.6.

Trends: Metro is near the top of the peers in the trends, especially in the past year and five years. Passenger miles increased during this period as a result of three factors: 1) increased ridership, 2) the closure of the downtown Seattle Ride Free Area, a source of numerous trips of smaller length, and 3) increased employment with comparably longer commute trips. The 10-year trends is lower because Link light rail started service in 2009 and replaced many long trips, particularly between downtown Seattle and Sea-Tac Airport.

Annual Change	Metro	Rank	Peer Avg.
1-year trend	1.3%	6	-2.6%
5-year trend	3.3%	7	0.5%
10-year trend	1.0%	12	0.4%

Metro's steps to increase boardings and productivity discussed in the previous two sections apply here—investing in productive routes, continuing focus on pass programs, improved scheduling efficiency, reallocations of service hours, and restructuring of routes based on our Service Guidelines.

[4] National Transit Database.



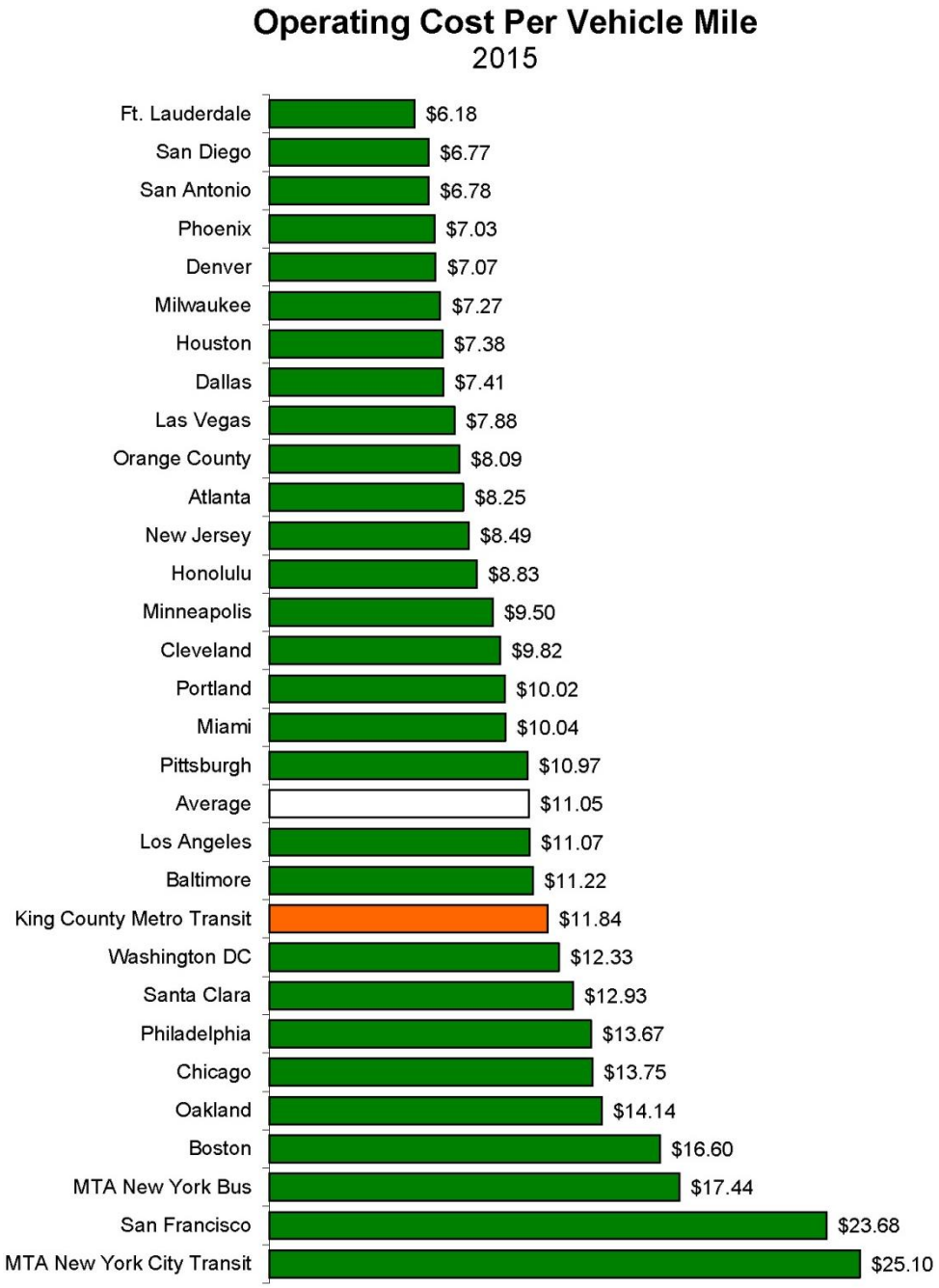
Operating cost per vehicle hour: Cost is the total operating expense for bus services. Cost per vehcile hour is a *cost-efficiency* ratio. This ratio gauges the cost inputs of a unit of service, since much of the cost is directly related to time in service.

2015 peer rank: Metro's cost per hour was $142.91 in 2015 (peer rank: 23rd lowest). The peer average was $127.90. Seattle is one of the most expensive markets in the country. Further, Metro has costs that many other agencies do not have. Metro operates the Downtown Seattle Transit Tunnel. While adding to Metro's total costs, this facility also supports efficient operation and quality of service in the Seattle core, reducing the number of service hours needed and providing the added benefit of reducing congestion on downtown streets. Metro also relies on an array of vehicle sizes and types to operate its service, which has an impact on operating cost. Articulated buses allow Metro to carry more passengers during periods of high demand. Electric-powered trolley buses minimize pollution, operate more quietly, and are well-suited for climbing Seattle's steep hills. However, these bus types are more expensive to run. Because Metro is part of a large, general-purpose government, it is responsive to the county's Strategic Plan goals that go beyond providing basic transit service. One goal is to support a strong, diverse, sustainable economy. Metro provides a high level of commuter service that requires more buses during peak times and a large network of park-and-rides, as well as very robust employer and school transit pass programs. Another goal is to reduce greenhouse gases, which is reflected through the more expensive zero- and low-emission fleets.

Annual Change	Metro	Rank[5]	Peer Avg.
1-year trend	0.3%	17	-0.9%
5-year trend	2.5%	23	1.6%
10-year trend	3.0%	18	2.8%

Trends: From 2014 to 2015, Metro's operating cost per hour increased 0.3%, (peer rank: 17th lowest increase). Metro's focus on cost containment was evident, as this was lower than the local inflation rate (1.1%). However, the majority of peers had lower increases (or decreases). Metro's 2015 increase was much lower than the increases in previous years.

[5] A lower-numbered rank means a lower increase in the cost ratio, so a lower number is better; 1st is the best rank.



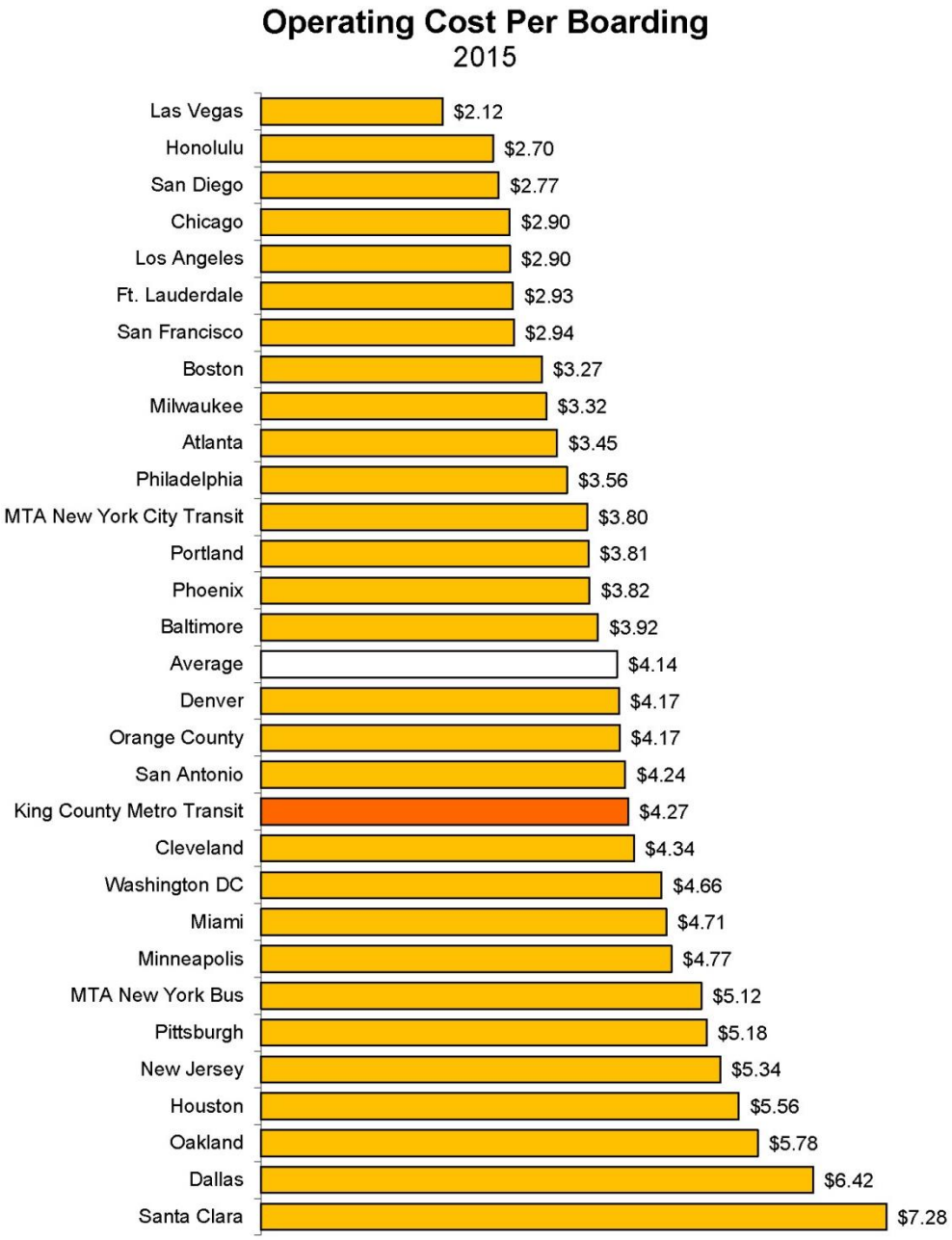
Operating cost per vehicle mile: This ratio is another *cost-efficiency* measure. This ratio gauges the cost inputs of a unit of service, since much of the cost is directly related to distance traveled.

2015 peer rank: Metro's cost per mile was $11.84 in 2015 (peer rank: 21st lowest). The peer average was $11.05. Cost per mile is affected by the geography and topography of Metro's service area. Puget Sound, Lake Washington, and the Ship Canal limit the street network, causing increased traffic congestion, and the region has steep hills along key travel corridors. Together, along with high boardings per hour, these factors slow the travel speeds of Metro's buses. Since many costs accrue regardles of distance traveled, slower travel times mean higher costs per mile. Services in other congested cities (New York, Boston, Washington, D.C.) and in other cities with geographical constraints (San Francisco) are more expensive per mile. Cities without these constrainsts (Dallas, Las Vegas, Phoenix) are among the least expensive to operate (as well as being lower-cost metro areas).

Annual Change	Metro	Rank[6]	Peer Avg.
1-year trend	2.2%	20	0.0%
5-year trend	3.7%	25	2.1%
10-year trend	3.4%	16	3.3%

Trends: Even though Metro's cost per hour barely changed in 2015, its bus cost per vehicle mile increased 2.2% (peer rank: 20th lowest increase). Hours increased while miles decreased. Budget-driven reductions in service hours in late 2014 were offset by Metro and City of Seattle's service investments, but those generally were made in more congested areas where bus speeds are slower. Over the longer term, congestion has increased throughout the service area, which also has slowed down service and resulted in faster increases in cost per mile than in cost per hour.

[6] A lower-numbered rank means a lower increase in the cost ratio, so a lower number is better; 1st is the best rank.



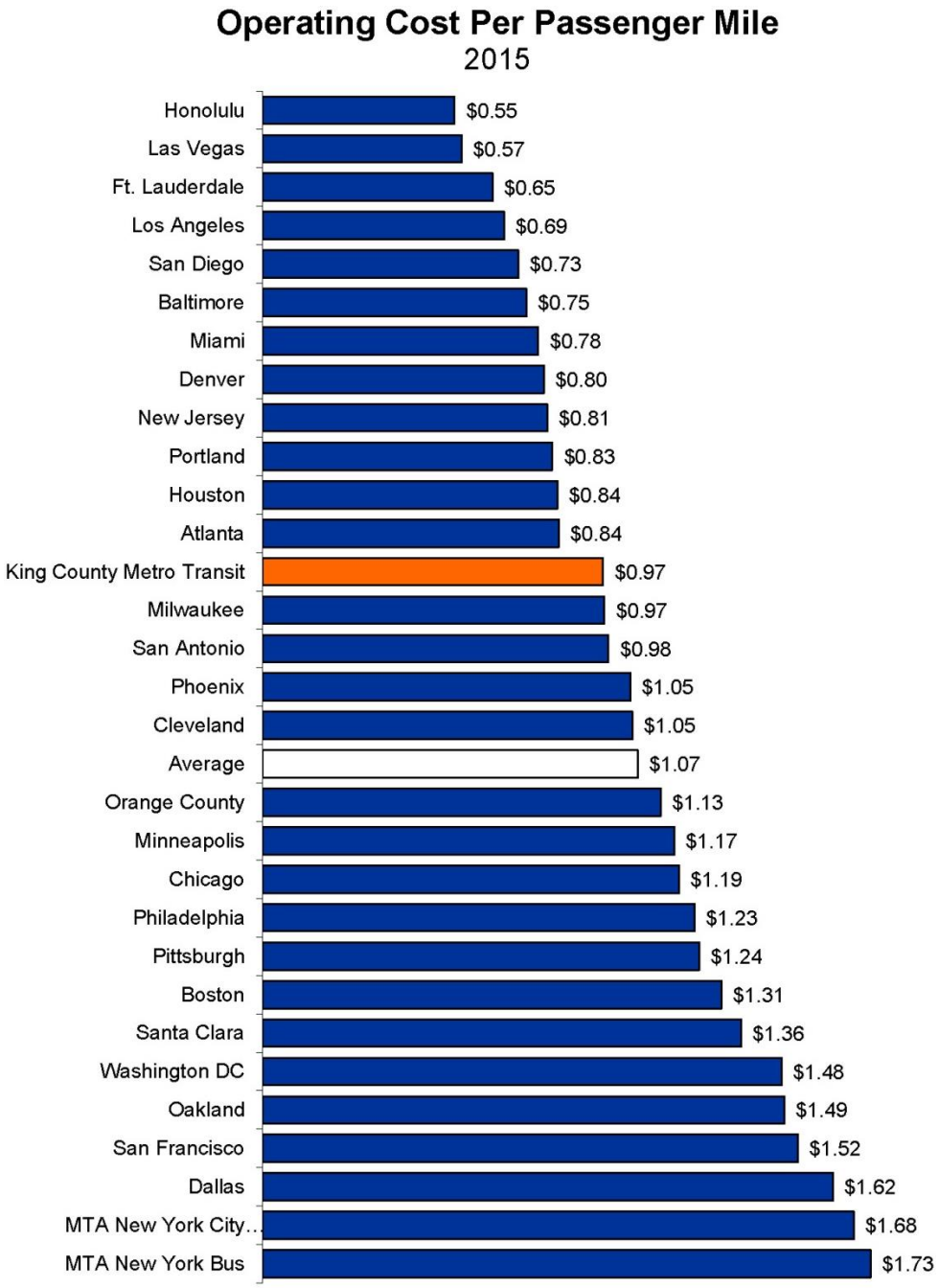
Operating cost per boarding: This ratio is a *cost-effectiveness* measure that guages how economically Metro provides its core service—getting passengers to their destinations.

2015 peer rank: Metro's cost per boading was $4.27 in 2015 (peer rank: 19th lowest). The peer average was $4.14. Many of the issues that make Metro's cost high on a per-hour and per-mile basis also drive Metro's cost per boarding. But Metro's high number of boardings per hour enables the agency to be close to the the peer average.

Trends: Metro's strong ridership growth and growth in boardings per hour help minimize the increases in the cost per boarding. Metro's growth in this measure was slower than the majority of its peers, especially in the 10-year trend where the increase was the fourth lowest of the 30 agencies.

Annual Change	Metro	Rank[7]	Peer Avg.
1-year trend	0.2%	11	2.8%
5-year trend	1.2%	9	2.7%
10-year trend	1.7%	4	3.6%

[7] A lower-numbered rank means a lower increase in the cost ratio, so a lower number is better; 1st is the best rank.



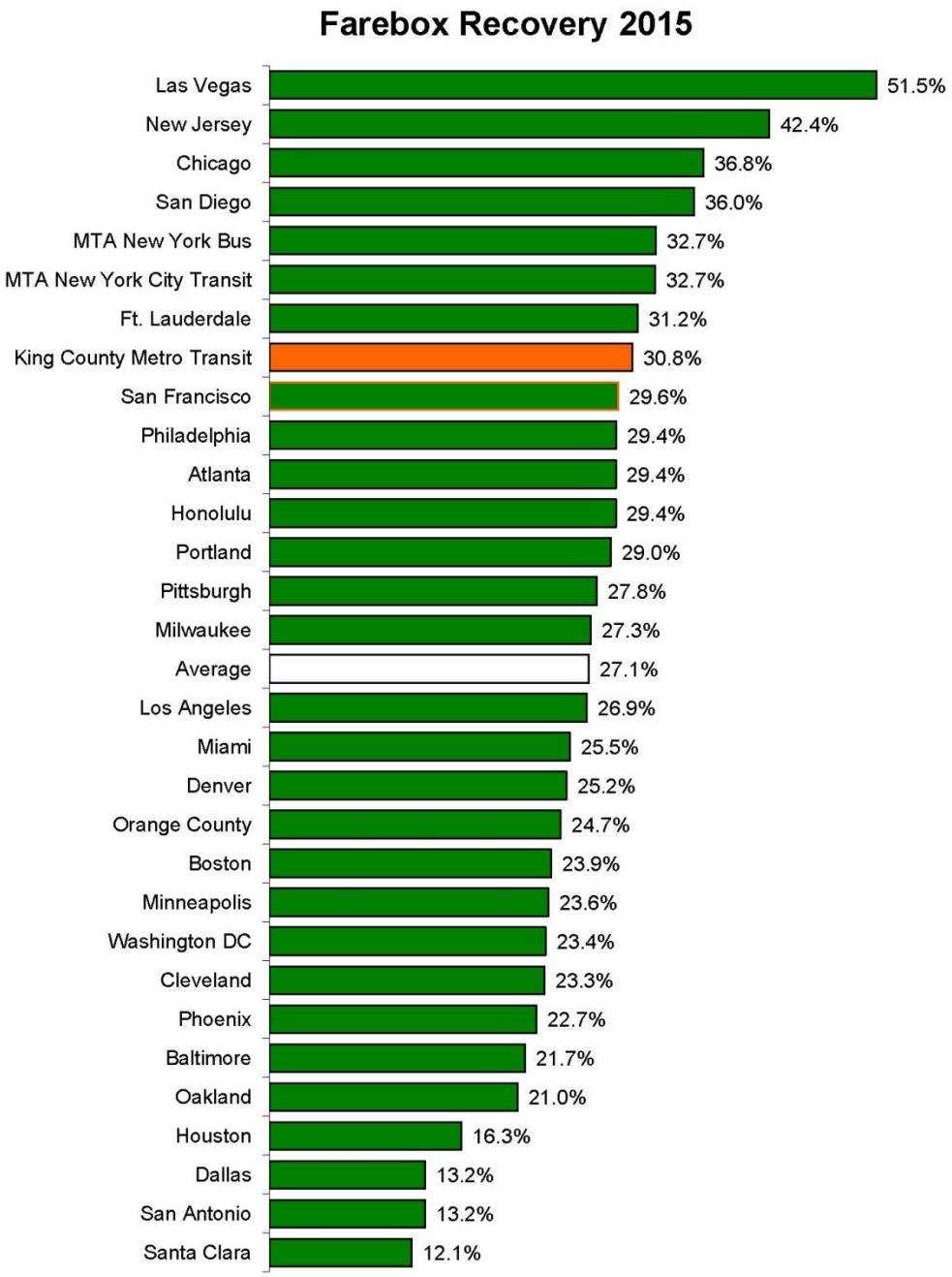
Operating cost per passenger mile: This ratio is another *cost-effectiveness* measure. One could argue that cost per passenger mile is the most important cost ratio. A transit agency's core business is to move passengers, and it moves them over distances.

2015 peer rank: Metro's cost per passenger mile was $0.97 in 2015 (peer rank: 13th lowest). The peer average was $1.07. The high number of passenger miles per vehicle mile enables the agency to be below the peer average. Investments that raise the cost per hour also help drive down the cost per passenger mile, such as articulated coaches and the downtown transit tunnel.

Trends: Over the past one and five years, the cost per passenger mile has increased well below the rate of inflation and better than most peers. The 10-year trend was affected by the introduction of Link light rail, which reduced the passenger miles, as noted earlier.

Annual Change	Metro	Rank[8]	Peer Avg.
1-year trend	0.8%	11	3.2%
5-year trend	0.4%	9	1.7%
10-year trend	2.4%	15	3.0%

[8] A lower-numbered rank means a lower increase in the cost ratio, so a lower number is better; 1st is the best rank.



Farebox recovery: This is the ratio of bus fare revenue (passes and cash) to bus operating cost. A higher ratio means less contribution from other sources, mainly sales taxes.

2015 peer rank: Metro's farebox recovery was 30.8% in 2015 (peer rank: eighth). The peer average was 27.1%.

Trends: Metro's one-year growth was 0.3 percentage points, which was slower than in past years. This was despite a fare incresae in early 2015. Part of the reason this fare increase was not reflected in the farebox recovery was the introduction of the ORCA LIFT program, a reduced fare for low-income customers. But the increase in farebox recovery was still ninth highest among the peers in 2015.

The increase has been stronger in the longer-term. Metro's primary funding source, sales tax revenue, fell as a result of the Great Recession, and took a number of years to recover. To replace a portion of the lost sales tax revenue, Metro raised fares each year from 2009 through 2011, and again in 2015. These fare increases, along with increased ridership and the containment of operating costs, drove an increase in farebox recovery. Metro's increase in the 10-year span was the second highest among the peers.

Total Change[9]	**Metro**	**Rank**	**Peer Avg.**
1-year trend	0.3%	8	-0.4%
5-year trend	2.7%	4	-0.9%
10-year trend	10.4%	2	-1.0%

[9] This measure is shown in total percentage point change. For instance, Metro's farebox recovery went from 20.4% in 2006 to 30.8% in 2015, a 10.4 percentage-point gain. That was the third highest gain among the 30 peers.